MORE BANG FOR A BOB: THE DECISION TO 'GO NUCLEAR' AND ITS IMPACT ON CHATHAM DOCKYARD

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Introduction

> '… there had been brought into being something big and something new that would prove to be immeasurably more important than the discovery of electricity or any of the other great discoveries which have affected our existence'. [2]

The devastation caused by the atomic bombs dropped on Hiroshima and Nagasaki in 1945 signalled a chilling new departure in warfare. The threat of total destruction became the overriding feature of the Cold War, with possession of the latest in nuclear weapons technology defining the World's dominant powers. In order to retain some vestige of world power status Britain strove to possess its own independent nuclear deterrent. Many of the resulting implications, from the economic and strategic consequences to the Campaign for Nuclear Disarmament, have been subject of historical study already.[3] Some very good works tracing the history of the nuclear deterrent have also been produced, with Nailor's detailed official history of the *Polaris* project and the collection of essays by those involved in the project's implementation in Moore's *The Impact of Polaris*, providing just two examples. [4] One area that is rarely considered, however, is the impact of the decision to 'go nuclear' on the state-controlled, royal dockyards.

Using Chatham Dockyard as a case study this article discusses the progress of Britain's quest for nuclear power status in relation to the royal dockyards.[5] From land-based *Blue Streak* and its relegation of the Royal Navy to lesser of the three military services in the late 1950s to submarine launched *Polaris*, which reinstated the Navy as the premier branch from the late 1960s, it considers how each stage impacted on the role and future of the dockyards. Chatham Dockyard, having concentrated on the construction and maintenance of conventional submarines and smaller naval vessels since 1908, arguably felt the pinch of defence cuts and increasing reliance on private shipyards for new construction most acutely once the nuclear deterrent became the keystone of

British defence. More than any other home dockyard Chatham's future was insecure. It was earmarked for possible closure in anticipation of the 1957 White Paper, *Defence: Outline of Future Policy*, and, though it survived then, by the mid-1960s its last new building contract – three conventional O' Class submarines for the Royal Canadian Navy – was drawing to close and it looked as though there would be little more work for the yard. Saved by the need for extra refitting capacity for the Valiant Class hunter killer nuclear powered submarines, the Yard remained operational until 1984. This article aims to show how the changing fate of Chatham Dockyard from 1957 onwards was intertwined with Britain's pursuance of the nuclear deterrent and the changes in strategy that this involved. In doing so it will also explain the exclusion of Chatham, as the Royal Navy's submarine specialist, from the *Polaris* Programme and the subsequent u-turn in policy towards using the yard for nuclear work when extra capacity was needed to refit the hunter killers.

A major power again

In 1957, the memory of US sanctions against Britain during the Suez Crisis was still raw and this, combined with withdrawal by America of rights to intelligence on nuclear weapons technology under the 1946 McMahon Act and the USSR's achievement of nuclear power status, fuelled Britain's decision to assert its independence. In 1958 with the delivery of hydrogen weaponry to the Vulcan bomber aircraft, Randolph Churchill (son of Winston Churchill) proclaimed:

> *Britain can knock down twelve cities in the region of Stalingrad and Moscow from bases in Britain and another dozen from bases in Cyprus. We did not have that power at the time of Suez. We are a major power again.*[6]

Yet it was already apparent that the V-bomber force no longer afforded adequate protection against nuclear attack. Duncan Sandys, newly appointed Minister of Defence, in his 1957 Defence White Paper called for cuts in conventional defence forces to pay for the development of a British independent nuclear deterrent; a move that was expected to be more economical in terms of firepower for resources expended, echoing Eisenhower's 'More bang for yer buck' policy against the threat of Communism. Strongly supported by Prime Minister

Harold Macmillan, Sandys set about replacing the V-bombers as the main deterrent with the land-based ballistic missile system *Blue Streak*. At the same time, emphasis was placed on the reduction of spending on conventional forces for the five years to 1961. Conscription was abolished, the size of the armed forces was to be reduced from 690,000 to 375,000 men and 'tactical' nuclear firepower was to compensate for the removal of forces from Europe and Asia. The Royal Navy was threatened with the prospect of relegation to the least important service now that conventional warfare had seemingly been superseded for any but *peacetime emergencies and limited hostilities*, and the RAF controlled both the V-bombers and *Blue Streak*.[7]

Sandys' calls for cuts to the Royal Navy were not a new phenomenon, but a continuation of the stream of reductions that had affected the force since 1951. The Admiralty formed the Way Ahead Committee in 1955, with First Lord Mountbatten at its helm, to look into the structure and supporting organisation of the naval service with the aim of reducing expenditure. Mountbatten was determined that cuts should no longer affect the active Fleet and turned attention instead to the shore support infrastructure, including the dockyards. In its report *Where Are We Going: A Review of the Supporting Organisation to Serve the Fleet*, the Committee concluded that the Fleet had reached an 'irreducible minimum if it is to fulfil its existing role and therefore cuts in the future must be made elsewhere'. It was recommended that the shore support infrastructure be examined with a view to reshaping it to reflect the smaller number of ships and naval aircraft of the 1960s. It was suggested that the dockyards be reduced to five; Chatham, Devonport, Portsmouth, Rosyth and Gibraltar. This meant the closure or disposal of the dockyards at Sheerness, Pembroke, Malta, Hong Kong and Simonstown, all of which took place between 1957 and 1964, though it was also debated whether Chatham should close and Malta be kept open.[8] In view of the political situation in Malta and the fact that vessels would have to be steamed there specifically to keep the dockyard open, however, Chatham was retained. In addition the Nore Command, the oldest naval command and the first in status, was to be abolished. This meant the exit of the Royal Navy from Chatham, the handover of the RN Barracks to the Royal Engineers and the closure of the RN

Torpedo Depot, Chatham, and Chatham Gunwharf Workshops. The global network of overseas and home dockyards, imperative to the maintenance of a large Fleet, was on the decline.

By 1960 *Blue Streak* became a victim of the incredibly fast paced progress of nuclear technology, rendered obsolete by Soviet advances before its completion. In comparison it had a slow reaction time of 10 minutes, was vulnerable to pre-emptive attack, powered by unreliable liquid fuel and its development was becoming increasingly expensive. Unsurprisingly the project was abandoned on 24th February 1960. Macmillan signed an agreement with President Eisenhower to procure the American air launched missile system *Skybolt* as an interim solution while options for the future of the British deterrent were explored.[9] As Reynolds has observed, Britain had 'dropped out of the nuclear race … and arranged to buy whatever the Americans had to offer ...'.[10]

Skybolt, however, also proved an ill-fated choice. By 1962, encouraged by the success of the *Polaris* submarine launched ballistic missile and spurred on by development problems with *Skybolt*, the US Government was eager to cancel the latter programme.[11] Though *Skybolt* was never intended to be a permanent system, its cancellation was unexpected. The news reached Macmillan through Sir David Ormsby Gore, British Ambassador in Washington, on 9 November.[12] Macmillan was due to meet with the new President John F Kennedy in Nassau a month later and decided to discuss the future of the British deterrent with him. During the meeting, Kennedy explained that he realised the political significance of *Skybolt* to the UK and said that the US was prepared to continue development of the programme as a joint enterprise. This would involve British investment in the system's research and development, hitherto not asked for. The alternatives were the second rate *Houndog* system (also airborne) or *Polaris* missiles. The problems with *Skybolt* had convinced Macmillan to opt for the *Polaris* missiles and it was agreed that Britain would produce the submarines to launch them and its own warheads. The *Polaris* Fleet would form part of Britain's contribution to NATO, although Macmillan had it written into the agreement that Britain reserved the right to deploy it independently should her national interests be at stake. The British Cabinet officially approved the Nassau Agreement on 3 January 1963.[13]

The submarine launched ballistic missile (SLBM) afforded Britain flexibility and stealth not possible with land-based systems and an element of surprise not offered by the air-borne deterrent. Unlike surface vessels, nuclear powered submarines were virtually undetectable from the air and once submerged were not hampered by adverse weather conditions. Moreover, as a small island nation, strategically the submarine launched deterrent was more effective, allowed for contemplated retaliation and was less vulnerable to pre-emptive attack. The decision boded well for the Royal Navy, which regained prominence as keeper of the nuclear deterrent. Indeed the Admiralty had realised the potential of the SLBM as early as 1956 and had been monitoring the progress of the United States *Polaris* Project through their presence in the USN Special Projects Office from 1958. It had even been suggested in some quarters that *Skybolt* would never become operational and Mountbatten was convinced that *Polaris* would replace it – though not before 1967. But the Admiralty did not push *Polaris* despite its advantages for fear that doing so would encourage RAF opposition and in turn invite the Ministry of Defence to play one service off against the other, probably to the detriment of the Royal Navy and its proposed carrier Fleet.[14]

The British *Polaris* Project

> *No-one who has seen these vessels larger than many pre-war cruisers, and who has talked to the highly skilled men who operate them, can have any doubt about their awesome power, their high degree of invulnerability and the high standards of achievement that are needed to create such a force and to deploy it.*[15]

It was officially stated in February 1963 that four or five nuclear powered submarines would be ordered to carry and deploy the *Polaris* missiles; they would form the Resolution Class and the first boat was to be on patrol in 1968. If compared with the three-year average building time for conventional ‘O’ Class submarines, one can see

just how tight the timescale for completion of these boats was.[16] Each vessel was to have a displacement tonnage of 8,500 submerged, length 425' and diameter 33'.[17] The boats were larger than the Hunter killers and their design was a new concept to both the Navy and the shipbuilders. When the decision was taken to procure *Polaris*, Britain's nuclear powered submarine building programme was still in its infancy with the prototype boat *Dreadnought* just completing at Vickers. Moreover, due to development problems with the British nuclear reactor at Dounreay, an American reactor powered the vessel. As Sir Hugh Mackenzie, Chief Polaris Executive (CPE), has since written, "… we were at the very bottom of a steep and formidably high learning curve."[18] The size and complexity of the submarines combined with the tight programme for completion meant that only yards with recent submarine hull building experience would be considered, leaving just three possible shipbuilders in the private sector: Vickers, Cammell Laird, Scotts; and the dockyard at Chatham.

That Vickers was the Admiralty's first choice for principal builder became apparent very early on. Just three months after the intention to build the submarines had been announced, representatives from Vickers were sent to America to discuss aspects of the programme with experts there, and Jack Daniel, Head of Nuclear Submarine Design Section, Ship Department, and responsible for the design of the British Polaris Fleet submarines recalls that the steelwork design had been released to Vickers in April or May 1963 to enable special steel to be ordered.[19] This is hardly surprising given that Vickers alone had experience in the construction of nuclear powered submarines and as such the company already possessed much of the special equipment required for the task, mainly financed by the Royal Navy during the *Dreadnought* project. [20] Moreover, of the six yards building submarines between 1944 and 1962 when the first Valiant boat was laid down, Vickers had completed 28 boats, or 50 per cent of the total number built for the Royal Navy in that period (see Table 1) and as early as 1961 the yard had been identified 'as being likely to concentrate in future on nuclear submarines'.[21] Furthermore, Vickers had a good working relationship with the Electric Boat, the lead yard for the American *Polaris* originating from co-operation during the *Dreadnought* programme. Electric Boat had agreed to provide advice and technical assistance essential to the success of the British programme.[22]

Table 1

Location of construction of Royal Navy submarine classes in service after 1945							
Submarine type and year first of class laid down	**Chatham Dockyard**	**Devonport Dockyard**	**Portsmouth Dockyard**	**Vickers-Amstrongs/ VSEL**	**Cammell Laird**	**Scotts**	**Total**
'A' (modernized), 1944	1	0	0	9	2	2	14
'T' Conversion (patrol), 1944	2	2	0	3	0	1	8
'T' Streamline (patrol), 1944	0	0	2	3	0	0	5
Explorer (experimental), 1954	0	0	0	2	0	0	2
Stickleback (midget), 1954	0	0	0	4	0	0	4
Porpoise (patrol), 1956	0	0	0	3	3	2	8
Dreadnought (nuclear attack), 1959	0	0	0	1	0	0	1
Oberon (patrol), 1959	4	0	0	3	4	3	14
Valiant (nuclear attack), 1962	0	0	0	4	1	0	5
Resolution (ballistic missile POLARIS), 1964	0	0	0	2	2	0	4
Swiftsure (nuclear attack), 1969	0	0	0	6	0	0	6
Trafalgar (nuclear attack), 1979	0	0	0	7	0	0	7
Upholder (patrol), 1983	0	0	0	1	3	0	4
Vanguard (ballistic missile TRIDENT), 1986	0	0	0	4	0	0	4
Total	7	2	2	52	15	8	86

Source: *Conway's All the World's Fighting Ships 1947-1995* (Conway Maritime Press, London: 1995), pp526-33.

Vickers was to be 'lead yard' on the programme, and thus expected to guide the second builder and to order all the necessary equipment and materials. The choice for second yard was not so straight forward and initially tenders were invited from Cammell Laird and a partnership formed by Scott's and fellow Clyde shipbuilder John Brown, though the latter was only included in the tendering process for political reasons, neither they nor Chatham were seriously considered for second building yard.[23] The significance of the Chatham's exclusion becomes clear when one considers that, though the royal dockyards had never really held a monopoly on naval new construction, the balance of new orders was certainly in favour of the private shipyards after the Second World War (see Table 2). Chatham, Cammell Laird and Scotts built roughly the same number of submarines from 1944 to 1962 though none matched the total built by Vickers. Experience, therefore could not be considered a major factor in the choice of second yard. The Admiralty chose Cammell Laird over the Scotts/John Brown partnership, claiming that it was the larger establishment, had superior capital and facilities and had also offered better financial terms. The yard was also better positioned for shipping-in prefabricated hull sections built by subcontractors on the West Coast, plus it was easy for the British and American missile system experts involved in the project could commute easily between Barrow and Birkenhead.[24] On 8 May 1963 the Admiralty announced, officially, the contracts had been awarded to Vickers and Cammell Laird.

Table 2

Proportion of naval construction by royal dockyards and private shipbuilders 1945-1964		
Shipbuilder	**Number of vessels**	**%**
Royal dockyards	13	10.7
Cammell Laird	13	10.7
Denny	1	0.8
Fairfield	5	4.1
Harland & Wolff	8	6.6
Hawthorn Leslie	2	1.7
John Brown	7	5.8
Scott	10	8.3
Stephen	6	5.0
Swan Hunter	8	6.6
Thorneycroft	5	4.1
Vickers	23	19.0
White	8	6.6
Yarrow	12	10.0

Derived from Gorst and Johnman *British Naval Procurement and Shipbuilding, 1945-1964,* p143.

Figure 1 Valiant arriving in Dock No 6 December 1966. Reproduced with kind permission of the Chatham Dockyard Historical Society.

No *Polaris* contract for Chatham

Chatham Dockyard's exclusion from the Project seemed immediately to predict the Yard's downfall. Indeed the implications for both Chatham Dockyard and Scotts were very real. Discussions in 1961 regarding the Frigate and Submarine Programme had highlighted the conflict between the conventional and the nuclear submarine building programmes as well as the potential over-capacity of building yards. Harold Watkinson, then Minister of Defence, had originally proposed that two 'O' Class submarines be ordered for the financial year 1962/63 'in order to keep in being submarine building skills at Chatham Dockyard and in the yard of Messrs. Scotts (Clyde) …' Following the adoption of the policy to concentrate on nuclear submarine building at the expense of conventional boats and in contemplation of the Treasury's stance on the building programme, however, K. T. Nash, Head of Military Branch I (RN), made the following comments:

> *We are obviously vulnerable on the point that at least unless Canadian orders mature, a building programme for one nuclear submarine a year will not call for keeping alive four building yards (or perhaps even three), and if the writing is on the wall, why order two conventional submarines this year to keep them all going a bit longer?*[25]

The implications for the Yard did not escape the workforce or the local press. It is relevant at this juncture to consider the context of this matter. The closure of Sheerness Dockyard, merely 10 miles along the River Medway from Chatham and the abolition of the Nore Command had taken place in 1960, the former resulting in the transfer of a high number of Established workers to Chatham and the latter the exit of the Royal Navy from the region.[26] Both events were indicators of decline, but combined with the fact that Chatham was approaching the end of the "O" Class submarine order for the Navy by this time, (the last of four boats, *Onyx*, was laid down on September 27, 1962), with no new contract to succeed it, fuelled rumours concerning the future of the Yard. The Trade Unions were moved to campaign against the decision not to allocate a *Polaris* submarine to Chatham and the *Chatham, Rochester & Gillingham News* reported on 31st May 1963 that a last chance request for a *Polaris* submarine to be built at Chatham had been raised by the Vice Chairman (Trade Union side) of the

Admiralty Industrial Council (AIC), Len Williams.[27] As has been shown, however, the Admiralty had already committed to awarding the contracts to Vickers and Cammell Laird at the beginning of the month and on August 9, 1963, the Labour Branch denounced the newspaper's claim that the Admiralty had agreed to consider Williams' proposal as a *misunderstanding of what was said at the May meeting of the Council* and it became a matter of some urgency to issue a statement setting out the Admiralty's reasoning for not building at Chatham in order to set the record straight.[28] Indeed, it seems that Williams had also been eager to quash the rumour and had been pressing the Admiralty for a statement on the decision to exclude Chatham, bringing the issue to the fore again in the AIC meeting of July 18.

The Civil Lord of the Admiralty, John Hay, wrote to Williams on September 23, outlining navigational difficulties in the approaches to Chatham and the risk of collision as the reasons why the Yard was not chosen as a builder for the *Polaris* programme.[29] He alluded in the letter to the argument that if an accident were to occur on the River Medway, there would be a greater chance of the submarine being grounded or not completely submerged, and therefore a greater risk of meltdown. In addition, it was thought that the level of shipping traffic in the Edinburgh Channel increased the risk of collision. All the time capacity was available at yards where the risks were not so great, Admiralty claimed, it was senseless to place the contract with Chatham. Though Hay's condemnation of Chatham as unsuitable for any type of nuclear work was rejected by Williams and several Admiralty colleagues and the letter withdrawn, the main tenet of the argument, relating to navigation and traffic levels, was upheld and developed in subsequent reports and correspondence. The flaws in this argument become clear when one considers the concern amongst Jack Daniel's contemporaries at the prospect of moving the Resolution class submarines through the shallow Walney Channel in Barrow (i.e. the approaches to Vickers). They were also concerned that with Cammell Laird as second builder there were potential problems with launching and moving the submarines in the busy River Mersey.[30] These comments were echoed in a letter published in the *Chatham, Rochester & Gillingham News* on the 22 March 1963. The anonymous author claimed that the 'Yard on the Walney Channel has many similarities to Chatham in that the

entrance from the channel at Ramsden Dock can only be used at high tide, like the North Lock at Chatham'. They went on to state that the tidal flow was no slower than at Chatham and that 'at low tide there is scarcely any water opposite the submarine building slip at Barrow, hence launching can only take place at high water'.[31] These factors were considered by the CPE and the cost of dredging was accepted as essential expenditure for the *Polaris* submarine building programme.[32]

Navigational risks had not been thought so great four years earlier when Chatham was considered the best choice as second yard for building the hunter killers. It was felt then that the royal dockyards would benefit from some experience of nuclear submarine construction when they came to refit and refuel the vessels. A joint committee formed by the Admiralty and Atomic Energy Authority (AEA) had assessed six ports: Rosyth, Portland, Devonport, Barrow (Vickers), Portsmouth and Chatham for their suitability as building and maintenance yards for nuclear submarines. Taking into account the proximity of significant blocks of population, ease of movement of the submarines and the availability of tug facilities, the teams ranked the yards in terms of their safety for nuclear work. Chatham was rated third in terms of safety, with Rosyth first and Portland, which was already earmarked for closure, as second. Barrow (Vickers) was considered the worst choice from the safety aspect, however, as Head of Military Branch II, stated safety was not the only factor to be considered and the experience it had gained plus the huge investment the Admiralty had made in the yard, decreed that Vickers would continue to build nuclear submarines. Experience was also an important factor influencing Chatham's proposal as second builder at that time, rather than Rosyth with its better safety rating.[33]

In terms of safety, the major concern with nuclear submarines was the possibility of an accident leading to core meltdown. For this to happen, there would have to be an interruption to the supply of cooling water, which was continuously pumped through the reactor under normal conditions. The resultant leak of radioiodine, known to cause thyroid cancer, into the atmosphere would be inhaled by the civilian population local to docks and basins used for nuclear work. At Chatham Dockyard it was recommended that No 1 Basin (North Wall) and No 9

Dock be used for nuclear work as they were further from the local population. In the worst case scenario 450 persons in a range of ¾ mile would be affected through inhalation. 300 of this total would be young boys on the training ship *Arethusa*, which was moored relatively near to No 9 Dock, though it was planned to moor her elsewhere from 1962.

The navigational problems of the River Medway identified in 1963 were not new; indeed silting had caused problems for Chatham Dockyard for much of its history. In 1959, however, dredging of the basins, docks and approaches to the Yard was planned to accommodate *Dreadnought*'s expected draught of 29' 6" (the actual draught of the vessel on completion was 26'). In comparison, the submarines of the Resolution class had a draught of 30' and the hunter killers had a draught of 27'.[34] The Controller of the Navy, Director General Dockyards & Maintenance (DGD&M), Director General Ships (DGS) and Flag Officer Submarines (FOSM) and others concluded on September 20, 1960 that none of the navigational disadvantages at Chatham *could be said to be insuperable for the Dreadnought Class, and it was not out of the question to plan for even Polaris submarines of current size to go there* and although vessels with deeper draughts may come into service in the future, the investment in Chatham would never be wasted. It was even mooted that finances be arranged with the assumption that Chatham would build the third of the hunter killers, SSN03.[35] Vickers and Cammell Laird built the entire hunter killer fleet between them, however, and Chatham was never to build a nuclear submarine.

A bleak future

Excluded from the *Polaris* programme, Chatham was left to ponder what the future held. There was considerable uncertainty as to the future load of all of the royal dockyards at this time. The reconstruction of the aircraft carrier HMS *Eagle* at Devonport and the conversion of the aircraft carrier HMS *Triumph* to a heavy repair ship at Portsmouth, were both approaching completion in 1963 without any major projects to replace them. As mentioned, at Chatham the third and fourth 'O' class submarines, *Ocelot* and *Onyx* were already under construction; no further new construction was planned after their completion.

Understandably, with no new construction or major modernizations on the horizon, rumours of redundancy and closure began to emerge in the local press. Chatham Dockyard was the largest employer in the Medway Towns with 11,900 workers in August 1962 and a significant proportion of local businesses relied on its custom, hence its closure would have far reaching effects locally.[36] On 17 May 1963 the *Chatham, Rochester and Gillingham News* published the headline *Dockyard Redundancies Shock* as news of manpower reductions to total about 500 was passed from Hay, to local Conservative MPs Freddie Burden and Julian Critchley. What the newspaper did not print was the fact that the Admiralty had planned to achieve the maximum reduction by normal wastage. Concern over the veracity of the rumours was reflected in the Industrial Whitley Committee Minutes of 12 June in which Admiral Superintendent for Chatham, Rear Admiral Beloe, stated that "there had been some loose talk locally of the closure of the Dockyard which was of course nonsense".[37]

It was hoped that the conversion of the submarine depot ship HMS *Forth* to support nuclear submarines, which began at the Yard in 1963, would provide fuller employment by 1964/65 and suggested, therefore, that the decision regarding redundancies be deferred until 1965, when any increased load and normal wastage of staff may have contributed to contract or eliminate the problem.[38] But the workforce reductions formed part of a longer pattern of contraction, reflecting shifts in policy as strategy and the state of the British economy changed. Their very status as government owned and run enterprises rendered the Dockyards vulnerable to variations in government policy, especially that relating to defence, and during the post-1945 period this was particularly apparent. Certainly throughout 1960s it was held that the royal dockyards could not be maintained at 1959 levels. The reductions coincided with a reorganisation scheme, designed to increase productivity and efficiency in the royal dockyards, for which Chatham was chosen as the pilot yard. Based on recommendations of the 1956 Sundridge Park Managers' Conference and closely aligned with a similar scheme of the US Navy, it was to be rolled out to all of the royal dockyards if the pilot was a success.

To ensure co-operation during the scheme, which included alterations to bonus payments and working hours, the Admiralty was keen to maintain good morale. This was clear throughout the debate over the builders invited to tender for Australian 'O' class submarines in May 1963. Campaigning for Chatham to tender for the contract, G. J. MacMahon, Under Secretary (Material), raised the issue of maintaining good morale at Chatham for the success of the 'reorganisation pilot'.[39] With Cammell Laird and Vickers committed to the *Polaris* programme, MacMahon suggested that Chatham Dockyard tender in addition to Scotts. His justification was that news that Chatham was to build the third or fourth Australian Oberon combined with the work on *Forth* would improve morale at the Yard and help to offset the official announcement of labour force reductions. The contract would enable the Yard to retain valuable training for the technical, professional and drawing office staffs and would also mean that its capital facilities would be more fully utilized.[40]

Classed as export work, building for the commonwealth navies had traditionally been the reserve of the private shipbuilders and the suggestion sparked a debate on whether the royal dockyards should be allowed to tender for this type of work. The Board of Trade and the Ministry of Transport were particularly loath to break with the tradition. Echoing Nash's comments that the planned submarine programme did not necessitate four submarine specialists, the Board of Trade argued, given the size of the Fleet, it was questionable whether the royal dockyards should continue to build vessels at all. Certainly it was felt that all export orders should be placed in development districts, such as Merseyside with its 6 per cent unemployment rate and Greenock where 9 per cent of its population were out of work. Chatham had a comparatively low unemployment rate (2.3 per cent) and varied industry base so did not come fall into this category. Neither did nearby Sheerness, where unemployment had risen to 7.2 per cent with the closure of its dockyard despite a third of its 3,000 workers having transferred to Chatham. The fear of political reprisals, it seems, won over and the contract was eventually given to Scotts.[41] In December 1963, however, with Vickers, Cammell Laird *and* Scotts fully employed Chatham did build three 'O' class submarines for the Royal Canadian Navy.[42]

A second refitting yard

In the meantime, the Admiralty Board was assessing the need for further refitting capacity for nuclear submarines. The new Labour Government, elected October 1964, had cancelled the fifth submarine in the *Polaris* programme, insisting that four boats would be adequate to act as Britain's nuclear deterrent. This brought the hunter killer programme forward. *Dreadnought* had been in commission since 1963, *Valiant* was due to enter service at the end of 1965 and *Warspite* would follow a year later; with the *Polaris* programme running in parallel, the need for additional refitting facilities was clear. To ensure that Rosyth had the capacity for the refits of the *Polaris* Fleet, it was decided to develop another refitting yard for the hunter killers. The Nuclear Warships Safety Committee was invited to a meeting in May 1964 to: examine assessments of the various possible refitting yards, to consider the order of preference among them and to agree in particular that Chatham was acceptable as a refitting yard.[43] The Controller and Fourth Sea Lord acknowledged that it was 'soon to reverse the decision of the Board about Chatham'. It was felt, however, that the hazards identified in the approaches to the Yard were overstated in 1963 and that 'they could no longer be held to override the other very substantial advantages' that Chatham boasted; the very same substantial advantages that the Port Survey Teams had identified in 1959! It was admitted that there were 'navigational risks in all port approaches' and that by observing weather and other conditions when planning to enter or leave Chatham Dockyard, the risks in the Edinburgh Channel would be insignificant.[44]

Another paper discussing the hazards of nuclear refitting, produced by the Nuclear Warships Safety Committee and presented at the meeting in May 1963, highlighted the fact that there was a higher risk of contamination after an accident during refitting than building, as nuclear reactors became more radioactive and generated more heat as they approached the end of their life. In contradiction to previous fears, the possibility of a nuclear

Figure 2 HMS Churchill in the dock at Chatham Dockyard. Reproduced with kind permission from the Chatham Dockyard Historical Society.

submarine grounding in the shallow approaches to the Yard was deemed improbable. It was more likely that the vessel would submerge, in which case the core was unlikely to endure meltdown and any contamination could be contained. It was also stated that with a choice of yards for refitting, the transport of submarines along the Edinburgh Channel and River Medway could be arranged to avoid traffic and low tides.

The intention to adapt Chatham as a refitting and refueling port for hunter killer submarines was announced to the House of Commons on 11 March 1965.[45] Early approval for the building works was required, as the Nuclear Complex had to be complete by 1968 to accommodate the first refit of HMS *Valiant*. It was decided to place the two stream refitting facility, capable of working on two submarines simultaneously, between 6 and 7 Docks. Chatham's task would begin in September 1968, when a double stream of refits was planned from then until December 1970. Jobs were created and the Yard began to look for men in the following trades to work in the Nuclear Complex when it opened 1968: shipwrights, shipfitters, engine fitters, electrical fitters, electricians (radio), boilermakers, coppersmiths, painters, skilled and unskilled labourers. The *Chatham Observer* ran a series of articles between September 24, 1965 and January 11, 1966, under the title *Over The Dockyard Wall!*, describing the work of different sections of the Yard to encourage local men to apply for the jobs that were becoming available.[46] The future of Chatham Dockyard appeared to be safe for the moment.

Conclusion

The fluctuating arguments relating to Chatham's involvement with the Royal Navy's nuclear submarines and the flaws in the Admiralty's reasons for excluding the dockyard from the *Polaris* programme suggest that there was more to the decisions taken than problems of navigation, safety or experience. As we can see from Daniel's comments and the later admissions of the Admiralty Board, all of the ports considered for the *Polaris* programme had difficulties in their approaches and Cammell Laird, at least, had equal problems with traffic levels. The nuclear submarines that were eventually to pass along the Medway for refitting and refueling were a higher risk than new buildings as their reactors were older, which further undermines the Admiralty's

Figure 3 Chatham Dockyard from the air. The Nuclear Complex can be seen in docks 6 and 7, next to Endurance with her red hull. Reproduced with kind permission from the Chatham Dockyard Historical Society.

arguments that Chatham should not build Resolution boats. It was considered to be second in terms of safety ratings in 1959 (if one excludes Portland) and it had comparable submarine hull building experience to Cammell Laird. Why, then, was Chatham not chosen to build or maintain Resolution boats and what changed to make the yard a good choice for the maintenance of the hunter killers?

In short, the need to develop independent nuclear defence capability in order to maintain some semblance of world power status meant that the defence system had to change and in response to the Cold War climate the 'more bang for a bob' approach was adopted. Cuts and closures increasingly featured in defence policy and as the Fleet became smaller and more specialized the capacity for warship building in the UK was in excess of that needed. In addition the Government had decided after the Second World War 'that only in exceptional circumstances would warships be built in H.M. Dockyards in the future.'[47] Instead new construction was to provide employment for private shipyards in the North of England, Scotland and Northern Ireland, areas with comparatively high unemployment, which increasingly suffered from a dearth of merchant new construction as foreign yards became more competitive and merchant ships themselves became bigger and more specialized. This issue was raised by MacMahon, on October 17, 1963, when discussing Hay's letter to Williams: …*the fact that from the national point of view it was more important to give employment on Merseyside and at Barrow than in Chatham weighed with us when the decision on Polaris builders was taken.* This influence on the decision was not to be revealed for fear that it would *not earn us any good marks at Chatham*, therefore, the navigational difficulties and collision risk were to be the official line.[48] Of the 121 naval vessels built between 1945 and 1964, the royal dockyards completed just 13 (see Table 2).[49] The frigate *Scylla*, completed at Devonport in 1969, was the last warship to be built in a royal dockyard.

Another fundamental problem that had to be considered during the choice of building yard for the Resolution boats was the availability of a suitable calibre of white collar staff to produce working drawings from Daniel's

designs from which the boats were to be built. Daniel has strongly stressed 'the importance of being able to recruit and keep several hundred graduate white collar staff of the right caliber for this work'. Vickers was the only company that had the resources to develop the designs, adding to the reasons stacked in their favour as lead yard. He added:

> *We couldn't have attracted such 'boffins' to work at Chatham under civil service conditions, we would have had to create a company to employ them and then employ that company. Working for such a company wouldn't be as attractive as working for a technology leader like Vickers.*[50]

The odds were, therefore, stacked against Chatham Dockyard when it came to building the Resolution class submarines. Situated in the relatively prosperous South East, with easy access to London and a comparatively varied industry base, whilst also being strategically ill-positioned for the needs of the post-1945 Navy, it becomes obvious why it was earmarked for closure in the 1950s and eventually closed in 1984. Indeed during the debate over the closures of the late 1950s, it had been stated that the option of closing Chatham should remain open, though it would not be possible to close the yard before the 1970s. Daniel has even gone so far to say that 'Chatham Dockyard and it's workforce were fortunate to have lasted as long as they did'. Likening the situation to a Greek tragedy, he states that in the worsening climate in merchant shipbuilding:

> *Our better-known yards were kept solvent by building warships and submarines for the Royal Navy and for export. Merchant shipbuilding was subsidised to some extent. The industry employed directly about 100,000 persons of whom about 35,000 were building warships. About twice these numbers were employed in factories distant from the shipyards making the engines and things to equip the ships. The warship orders subsidised the lot and firms got deeper in the red* … [this combined with pressures on the Treasury to divert resources from defence to health, education and social security] *and the decline in overall size of the Royal Navy, is the backcloth to the fate of the Royal Dockyards …* [51]

When extra capacity for refitting the hunter-killers was required the Admiralty rescinded its previous assertions about the unsuitability of Chatham for nuclear work. Was this really just because the arguments had been overstated in 1963? Was it merely the cheapest choice?[52] Recent correspondence I have held with Jack Daniel suggests that there was a more political explanation. Firstly, the complexity and unpredictability of refitting warships influenced the decision to concentrate potentially open–ended refits with royal dockyards rather than private yards, thus explaining why Chatham was selected over Scotts. However Chatham was never intended to take over the refitting of nuclear submarines indefinitely, just 'until Devonport was ready to take over'.[53] Indeed, when Chatham was closed, Devonport did take over this function. Thus it seems that the intention to close Chatham was long and consistent throughout the post-1945 period, rendering null and void all claims to the contrary by Admiralty officials and politicians uttered repeatedly in the period.

While the less cynical Medway citizen could be forgiven for believing that the Yard would indeed go on as long as the Conservative Party went on, as Macmillan had claimed when visiting Medway during the 1959 General Election campaign,[54] rumours of closure still circulated among workers. The Yard was, however, busy once the Nuclear Refit Complex was built and continued its role in refit and repair for nearly 20 years. The pattern of change that the royal dockyards seemed to have entered as early as the interwar period, however, came to a head with the closure of Gibraltar Dockyard in 1983, Chatham in 1984 and Portsmouth's reduction to Fleet Maintenance and Repair Organization in 1983 so that of the eleven dockyards in operation in 1950 only three remained and all under commercial management. Today the royal dockyard as it was recognized in 1963 no longer exists. At Chatham, Portsmouth and Devonport the museums are a reminder of a once extensive institution, the obsolescence of which was hastened by the advent of the nuclear deterrent.

[1] I should like to extend thanks to an anonymous referee for their helpful comments and to R. Jack Daniel, who started out as a Chatham Dockyard apprentice, was Head of Design Division throughout the *Dreadnought* and *Polaris* projects and who became

Director General Ships and Head of the Royal Corps of Naval Constructors and Board Member for Warship building at British Shipbuilders when he left the MoD in 1979; he has offered a great deal explanation and advice through his letters to me.

[2] Quoted in P. Kennedy The Rise and Fall of the Great Powers: Economics change and military conflict from 1500 to 2000 (London, 1989), p476.

[3] For background to the development of the nuclear deterrent see: E. Grove Vanguard to Trident: British Naval Policy since World War II (London, 1987); M. Chalmers Paying for Defence: Military Spending and British Decline (London:1985); D. Holdstock & F. Barnaby (ed.). The British nuclear weapons programme, 1952-2002 (London: 2003); E. J. de Kadt British Defence Policy and Nuclear War (London:1964); M. Dockrill British Defence Since 1945 (Oxford:1988).

[4] See: P. Nailor The Nassau Connection: The Organization and Management of the British *Polaris* Project (London, 1988); J. E. Moore The Impact of *Polaris*: The origins of Britain's seabourne nuclear deterrent (Huddersfield, 1999).

[5] R. Jack Daniel became Director General Ships and Head of the Royal Corps of Naval Constructors and when he left the MoD in 1979 he was a Board Member for Warshipbuilding at British Shipbuilders.

[6] A. Sked & C. Cook Post-War Britain: A Political History, New Edition 1945-1992 (London, 1993), p143.

[7] Parliamentary Papers: 1956-57, Cmnd 124, Vol XXIII, p489: Defence: Outline of Future Policy.

[8] NA, PRO ADM 1/26068. *'Where are we going' board memorandum B983: review of future naval policy*, 1955.

[9] Moore The Impact of Polaris, p14

[10] D. Reynolds Britannia Overruled: British Policy & World Power in the 20th Century (London, 1991), p54.

[11] Moore The Impact of Polaris, p15.

[12] NA, ADM 1/28839: *POLARIS SSBNs - acquisition, organisation and assignment to NATO: future development/failure of SKYBOLT (air-surface missile)*, 1962-1963: Telegram No 2832 from Sir D Ormsby Gore, Washington, to Foreign Office November 8, 1962.

[13] NA, PRO, ADM 1/28839. Text of Draft Statement on British Nuclear Defence System agreed by the Prime Minister and the President of the United States in the course of their Bahamas meeting 18-20 December 1962.

[14] E. Grove 'From Tactom to Seaslug: the Royal Navy and the guided missile 1944-2004' conference paper presented at Innovation and the Royal Navy, 1930-2000, National Maritime Museum, December 4, 2004. For a detailed discussion of the Navy's proposed carrier fleet see E. Grove *From Vanguard to Trident.*

[15] Hansard (Commons) Vol 708 Col 663: Christopher Paget Mayhew, Minister of Defence for the Royal Navy, speaking about the US *Polaris* Fleet and planned British Fleet, March 11, 1965

[16] NA, PRO, ADM 1/27872 *Frigate and submarine building programme*, 1960-61: Appendix A 'Frigates and Submarines', dated 26th May 1961.

[17] Jane's Fighting Ships and private correspondence with R. Jack Daniel.

[18] Moore, The Impact of Polaris, p46.

[19] Moore, The Impact of Polaris, p120.

[20] NA, PRO, ADM 1/29356: *Polaris Submarine Programme: Choice of Yards*. Draft EPC Paper: "*Polaris*" Submarine Building Programme – Choice of Building Yards. Memorandum by the First Lord of the Admiralty, Lord Carrington, no date, but c1963.

[21] NA, PRO, ADM 1/27872.

[22] G. Weir Forged In War: Naval-Industrial Complex and American Submarine Construction, 1940-61 (Washington, 1993).

[23] Private correspondence with R. Jack Daniel February 8, 2005.

[24] Private correspondence with R. Jack Daniel February 8, 2005.

[25] NA, PRO, ADM 1/27872: D(61) 8th Meeting (Extracts from minutes of a meeting held at Admiralty House, 31st May 1961) and Nash's paper D(61)29.

[26] 'Established' status was awarded to a limited proportion of the dockyard workforces; those achieving Establishment would be entitled to a pension and expected to enjoy a 'job for life'. The security afforded by Establishment compensated for the lower rates of pay that workers received in comparison to private shipyard workers. Established workers were usually offered employment at other dockyards in the event of cut backs and closures.

[27] NA, PRO, ADM 1/28574 *Polaris submarine programme: choice of building yards 1963: Effect of Polaris Programme on Chatham Dockyard*, newspaper cutting taken from Chatham, Rochester & Gillingham News 31 May 1963.

[28] NA, PRO, ADM 1/28574 L.3724/63 9 August 1963.

[29] NA, PRO, ADM 1/28574

[30] Moore, Impact of Polaris, p121.

[31] 'Nuclear Submarines at Chatham: Civil Lord's Statement is 'somewhat surprising' ' Chatham, Rochester & Gillingham News 22 Mar. 1963, p13.

[32] Moore, The Impact of Polaris, p121.

[33] NA, PRO, ADM 1/27806. Draft Minute: M.II/618/18/59.

[34] *Jane's Fighting Ships*

[35] NA, PRO, ADM 1/27806.

[36] NA, PRO, Department of Economic Works (EW) 7/30: *Submarines for Australian Navy: question of building in Royal dockyards 1963:* Information from Mr Day concerning Chatham region's economic status.

[37] Chatham Dockyard Historical Society, Chatham (hereafter CDHS), Chatham Yard Industrial Whitley Committee, Minutes, 194th Meeting 12 June 1963, *Statement on the royal dockyards made by the Civil Lord*.

[38] CDHS, Minutes of the Meeting of the Chatham Yard Non-Industrial Whitley Committee held on 29th November 1963 Appendix I: *Restriction in Numbers Employed During 1964/65* (notes regarding Admiral Superintendent Beloe's memo no 65/63).

[39] NA, PRO, EW 7/30

[40] NA, PRO, EW 7/30

[41] NA, PRO, EW 7/30

[42] NA, PRO, ADM 1/28593: *Placing of Orders for Commonwealth Submarines*, 2 December 1963.

[43] NA, PRO, ADM 1/29069: *Report on considerations involved in selection of yards to refit nuclear submarines 1963-1964:* M.II.618/6/64 memorandum from DS 5 to DUS 2 (N) dated 7 April 1964.

[44] NA, PRO, ADM 1/28574: *Effect of Polaris Programme on Chatham Dockyard: Development of Chatham Dockyard for Nuclear Submarine Refitting Work: Notes for Supplementaries*

[45] Hansard (Commons), Vol 708 Col. 665. March 11, 1965.

[46] CDHS, *Chatham Observer* September 24, 1965 to January 11, 1966.

[47] Private correspondence with R. Jack Daniel, December 1, 2004.

[48] NA, PRO, ADM 1/28574, L.3724/63, MS 6.

[49] A. Gorst & L. Johnman 'British Naval Procurement and Shipbuilding, 1945-1964' in D. J. Starkey & A. G. Jamieson (eds) Exploiting the Sea: Aspects of Britain's Maritime Economy Since 1870 (Exeter, 1998), p142-3.

[50] Private correspondence with R. Jack Daniel, February 8, 2005.

[51] Private correspondence with R. Jack Daniel, February 8, 2005.

[52] NA, PRO, ADM 329/9 *Chatham Dockyard: nuclear refitting facilities; approval of works required 1965 Aug 01 – 1967 Jun 30*

[53] Private correspondence with R. Jack Daniel, December 1, 2004.

[54] 'PM Visits Medway and Pledges – DOCKYARD WILL NOT BE CLOSED', Chatham News 4 Oct. 1959, p1.